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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,900	11/21/2003	Krishnan Chari	86421CPK	1667

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EXAMINER	
VU, PHU	
ART UNIT	**PAPER NUMBER**
2871	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/718,900	CHARI ET AL.	
	Examiner	Art Unit	
	Phu Vu	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 January 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9 and 28-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9 and 28-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-9 and 28-36 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3 and 5-9 and 28-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1, (all other claims dependent) the limitation of "whereby a more color-neutral image area is provided when the image area is in the first reflecting state" is indefinite. First, it references a comparison between two this only one of which is known. The limitation could mean more color-neutral than a second scattering state, more color neutral than another display such as the type of taught by Yang. Furthermore it is unclear the exactly what is meant by color neutral because certainly LCD displays known in the art can obtain color neutrality otherwise displays known in the art would not be able to produce black white, or any shade of grey therefore a distinction. If color-neutral requires specific reflectance at certain wavelengths than this must be clearly quantified therefore the limitations of the display being more color neutral in the first reflective state" are considered met by the reference below.

Furthermore the claim mentions an "optional substrate." Assuming this substrate is purely optional than this limitation does not provide any structure to the claim as it essentially can be ignored if it is optional.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1-3 and 5-9 and 28-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Yang 6061107.

Regarding claim 1, Yang teaches a display sheet comprising an optional substrate (fig. 2 element 104) for carrying layers of material; an imaging layer comprising a substantial monolayer of isolated domains (201-203) of liquid crystal dispersed in a continuous matrix, said LC having a first reflecting state within the visible light spectrum defining an operating spectrum and a second weakly scattering state in said operating spectrum (see fig. 4) which sates are capable of being maintained as a stable state in an absence of electric field ("bistable" see title, abstract), wherein said domains of LC material comprises a mixture of at least two populations, a first population comprising a first LC material having a first λ_{max} and a second population comprising a second liquid-crystal material having a second λ_{max} wherein there is a difference between first and second λ_{max} of at least 50 nm (red vs blue) wherein a

substantial monolayer of isolated domains of liquid-crystal material means that, at most, only a minor portion of the area of the display sheet has more than a single domain between the electrodes in a direction perpendicular to the plane of the display sheet, compared to the amount of area of the display sheet at which there is only a single domain between the electrodes (see fig. 2), and first transparent conductors disposed on one side of said imaging layer second conductor disposed on an opposite side of said imaging layer (see elements 103 and 104 which are referred to as glass plate with ITO coating). The limitation of the "liquid crystal coated as an emulsion" is a product by-process limitation and thus treated accordingly. MPEP Section 2113[R-1] states:

> *PRODUCT-BY-PROCESS CLAIMS ARE NOT LIMITED TO THE MANIPULATIONS OF THE RECITED STEPS, ONLY THE STRUCTURE IMPLIED BY THE STEPS "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process."*

Regarding claim 2, the reference shows a state with tristimulus values within 20% of each other (see fig. 10).

Regarding claim 3, 5, the reference teaches a first LC material has a peak reflected wavelength in the range of 561 to 720 nm (red) and second LC material has a peak reflected wavelength in the range of 450 to 560 nm (blue).

Regarding claims 6, 7 and 30-31, the reference teaches an imaging layer comprises a mixture of only two types of domains each reflecting a different part of the

visible spectrum wherein said first material reflects red and second liquid crystal material reflects green or blue (see fig. 2). The first type is considered only red and the second type reflects blue or green, which has a peak of at least 100 nm more than a red peak.

Regarding claim 8, the reference teaches first and second conductors patterned to produce an addressable matrix (see fig. 8).

Regarding claim 9, the reference teaches chiral nematic liquid crystal material (see abstract "cholesteric") and said continuous matrix comprises a gelatin (fig. 2 102).

Regarding claims 28-29, the reference teaches no more than a single layer of domains sandwiched between electrodes at most or 75% or more points of the imaging layer.

Regarding claim 32-35, the first region as the red reflecting region and second region as the blue and green reflection region than these limitations are met.

Regarding claim 36, considering the red as one region and blue/green as another than the respective populations are 33% and 66%. These are considered about 50%.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of Faris 6753044.

Regarding claim 4, Yang teaches all the limitations of claim 4 except first and second liquid crystal material comprise a dopant having first and second concentration, wherein first and second concentration differs such that the pitch is smaller than that of the first liquid crystal. The primary reference teaches equal concentrations of the chiral dopant and UV irradiation at different periods of time to achieve varying pitches. Faris teaches these method of controlling pitch are functional equivalents (see column 16 line 67- column 17 line 20). Therefore, use of one given the over is obvious as they are considered equivalent.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu Vu whose telephone number is (571)-272-1562. The examiner can normally be reached on 8AM-5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571)-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Phu Vu
Examiner
AU 2871